CLAIMS

What is claimed is:

1. An infectious recombinant Infectious Bursal Disease Virus (rIBDV) essentially incapable of growing in a non-bursa cell or cell derived from a non-bursa cell.

2. An infectious rIBDV having retained at least part of the very virulent characteristics of a very virulent Infectious Bursal Disease Virus (vvIBDV).

3. The rIBDV of claim 1 wherein the rIBDV has retained at least part of the very virulent characteristics of a very virulent Infectious Bursal Disease Virus (vvIBDV).

4. The rIBDV of any one of claims 1 to 3 wherein said rIBDV is essentially incapable of growing in a CEF cell, a VERO cell or a QM5 cell.

5. The rIBDV of any one of claims 1 to 4 wherein the rIBDV's VP2 protein sequence has no asparagine at amino acid position 279.

6. The rIBDV of claim 5 wherein the amino acid sequence of protein VP2 has aspartic acid at amino acid position 279.

7. The rIBDV of any one of claims 1 to 6 wherein the protein VP2 has no threonine at amino acid position 284.

8. The rIBDV of claim 7 wherein the protein VP2 has alanine at amino acid position 284.

9. The rIBDV of claim 8 wherein the amino acid sequence of protein VP2 comprises a stretch of amino acids from about position 279 to 289 as found in a vvIBDV isolate such as shown in Table 8.

10. A method for obtaining an infectious recombinant Infectious Bursal Disease Virus (rIBDV) incapable of growing on a non-bursa cell derived cell, said method comprising:

transfecting at least one first cell with a nucleic acid comprising a IBDV genome at least partly derived from IBDV,

incubating said first cell in a culture medium,

recovering rIBDV from said transfected first cell or said culture medium and

propagating said recovered rIBDV in at least one second cell which is permissive for said rIBDV.

11. A method for obtaining an infectious recombinant Infectious Bursal Disease Virus (rIBDV) having retained at least part of the very virulent characteristics of a very virulent Infectious Bursal Disease Virus (vvIBDV), said method comprising:

transfecting at least one first cell with a nucleic acid comprising a IBDV genome at least partly derived from a vvIBDV,

incubating said first cell in a culture medium,

recovering rIBDV from said transfected first cell or said culture medium and

propagating said recovered rIBDV in at least one second cell permissive for said vvIBDV.

12. The method according to claim 10 or 11 wherein said first cell is a non-bursa cell derived cell.

13. The method according to any one of claims 10 to 12 wherein said second cell is a Bursa-cell derived cell.

14. The method according to any one of claims 10 to 13 wherein said first cell, such as a CEF cell, a VERO cell or a QM5 cell, is non-permissive for vvIBDV.

15. The method according to any one of claims 10 to 14 wherein said first cell has additionally been provided with a helper virus or a viral protein derived from a helper virus.

16. The method according to claim 15 wherein said viral protein comprises T7-polymerase.

17. The method according to any one of claims 10 to 16 wherein said rIBDV has at least retained the incapacity to substantially be propagated on a vvIBDV non-permissive cell selected from the group consisting of a VERO, a QM5 and CEF cell.

18. The method according to any one of claims 10 to 17 wherein said permissive second cell is a primary bursa cell.

19. The method according to any one of claims 10 to 18 wherein said rIBDV comprises at least a nucleic acid derived from at least a part of genome segment A of vvIBDV.

20. The method according to claim 19 wherein said nucleic acid encodes at least a functional part of protein VP2.

21. The method according to any one of claims 10 to 20 wherein said rIBDV comprises at least a nucleic acid derived from a serotype II IBDV.

22. The method according to any one of claims 10 to 21 wherein said rIBDV is lacking at least one immunodominant epitope specific for a serotype I IBDV.

23. An infectious mosaic IBDV (mIBDV) comprising a rIBDV wherein at least one genome segment comprises nucleic acid derived from at least two different Birna virus isolates.

24. The mIBDV of claim 23 wherein at least one of said isolates is a vvIBDV.

25. The mIBDV of claim 23 or 24 wherein said mIBDV is unable to be propagated on a vvIBDV non-permissive cell selected from the group consisting of a VERO cell, a QM5 cell, and a CEP cell.

26. The mIBDV of any one of claims 23 to 25 wherein said mIBDV is able to be propagated on a vvIBDV permissive cell.

27. The mIBDV of any one of claims 23 to 26 wherein at least one of said isolates is a serotype II IBDV.

28. The mIBDV of any one of claims 23 to 27 lacking at least one immunodominant epitope specific for a serotype I IBDV.

29. A vaccine comprising the rIBDV of any one of claims 1 to 9 or the mIBDV of any one of claims 23 to 28.

30. The rIBDV of claim 8 wherein the amino acid sequence of protein VP2 at least comprises a stretch of amino acids from about position 229 to 314.